FREQUENCY DOMAIN ESTIMATION OF IQ IMBALANCE IN A WIRELESS OFDM DIRECT CONVERSION RECEIVER USING LOOPBACK CONNECTION

ABSTRACT OF THE DISCLOSURE

An OFDM transceiver has a transmitter, a receiver, and a loopback switch. The loopback switch configured is for selectively establishing a physical connection between an output terminal of the transmitter and an input terminal of the receiver. The transmitter is configured for outputting to the output terminal an OFDM signal generated based on a local oscillator signal. The receiver is configured for demodulating the OFDM signal, received via the physical connection, using the local oscillator signal and determining amplitude and phase imbalance parameters based on performing frequency-domain estimation of amplitude and phase imbalances. Hence, the receiver is configured for performing imbalance compensation on a received wireless OFDM signal based on the determined amplitude and phase imbalance parameters. Hence, amplitude and phase imbalances can be estimated accurately despite channel fading and frequency variations encountered between the transmitter of the wireless OFDM signal and the receiver.